NASA'S MISSION TO PLANET EARTH
EARTH PROBES
DATA INFORMATION SYSTEM
EOS
EARTH OBSERVING SYSTEM
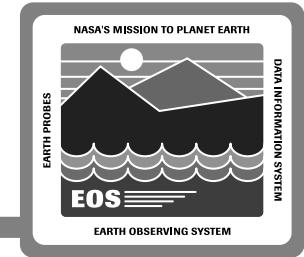
Version 0 Analysis

Mark Abernathy

### System Design Review - 29 June 1994

Overview

- **Status of the V0 analysis effort**
  - **Past, Present, Future**
- **Ensuring access to all data**
  - **How ECS can be interoperable with V0**
  - **Archive envelopment**
  - **Setting priorities for migration of V0 data to ECS**
- **Support for transition of V0 to V1**
- **Summary**

V0 Analysis - Past and Present

- **V0 Analysis Report (DID 206/SE2)**
    - **First Draft delivered December 1993**
        - **Focused on V0 functionality**
- **Updated May 1994**
    - **Identified numerous areas where V0 may influence ECS design**
        - **Software - Guide, System IMS (some code reused in EP3), LaRC user interface...**
        - **Hardware - Reuse of V0 network routers and circuits, media devices...**
        - **Design - IMS Server Cookbook, MSFC Super Granules, ingest software...**
        - **Processes and Procedures - Data Submission, Tirekickers, User Working Groups...**
        - **Lessons Learned - V0 network team, FSMS, schedulers (UARS, CERES prototype)...**

V0 Analysis - Future
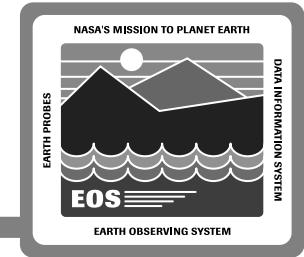
- **Next delivery of V0 Analysis Report at PDR**
  - **V0 team will continue to be a conduit of V0 information to ECS design groups**
  - **Focus of analysis will shift**
    - **Services oriented analysis of V0**
    - **Support for transition planning**
    - **Lessons learned from V0 ORR and initial operations**
  - **Updates for Release B IDR**
    - **Lessons learned from V0 operations**
- **Continue working with the DAAC's to capture lessons learned**
  - **Version 0 Analysis is an on-going process!**
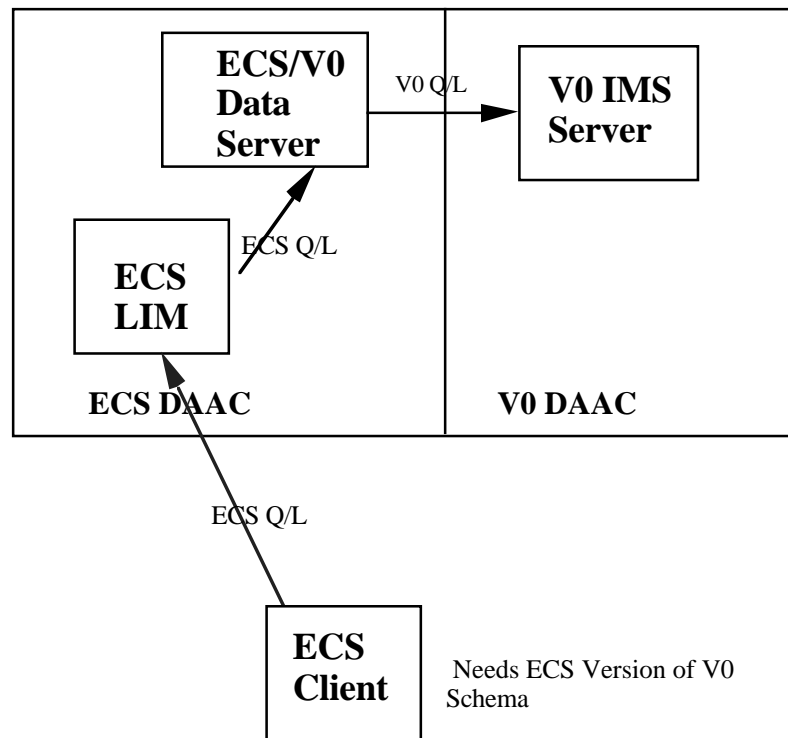
Interoperability Approach
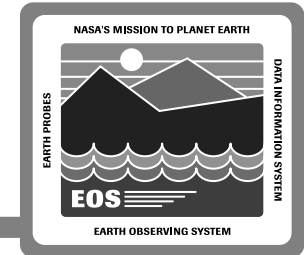
- **ECS and V0 will have bi-directional level 3 interoperability**
  - **ECS/V0 servers will interact with each other by exchanging standard search protocols; or**
  - **Passing a query to the target system is transparent to the user**
- **Interoperability approaches under study**
  - **SDPS working with V0 team**
- **Following charts illustrate two candidate approaches**
  - **User logged on to ECS client executes a query that is passed to V0**
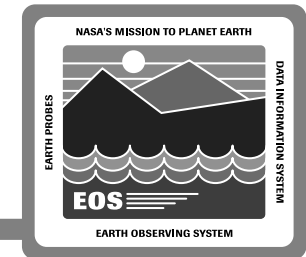 - **User logged on to V0 IMS executes a query that is passed to ECS**

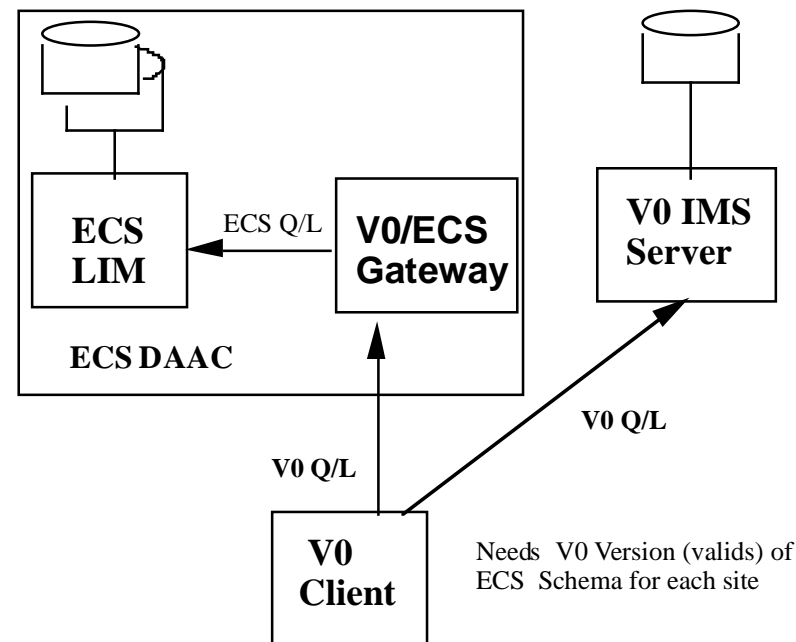# ECS to Version 0 Interoperability Candidate Approach
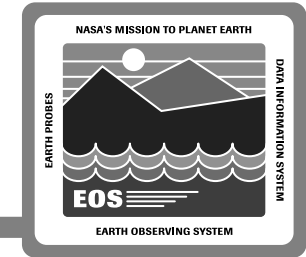
- **V0 as a Data Server**
  - **The LIM would translate the LIM query into a Data Server query**
  - **The ECS / V0 Data Server would then translate the ECS Data Server query into a V0 query**
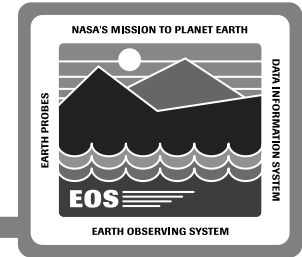
Version 0 to ECS Interoperability Candidate Approach

- **Gateway Option**
  - **V0 query is passed to a V0/ECS Gateway located at each DAAC**
 - **The Gateway parses and translates the V0 Query to an ECS Query**

ECS Q/L

ECS LIM

V0/ECS Gateway

V0 IMS Server

ECS DAAC

V0 Q/L

V0 Q/L

V0 Client

Needs V0 Version (valids) of ECS Schema for each site

Interoperability Approach
# Technical Issues

- **ECS to Version 0**

  - **User Authentication**

  - **There are mandatory fields in the V0 system level IMS. ECS does not have that concept**

  - **Would we integrate results from V0 and ECS?**

  - **What kinds of joins between ECS and V0 are of interest?**

- **Version 0 to ECS**

  - **User authentication**

  - **Need to provide ECS schema information to V0 client**

  - **How are results returned from ECS to V0? Would user see separate results for NSIDC ECS and NSIDC V0?**
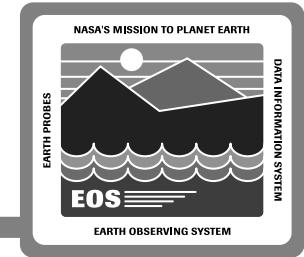
Archive Envelopment
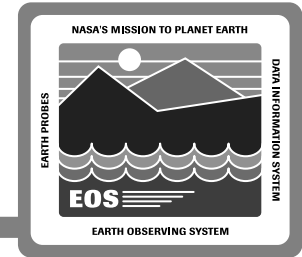
- **Envelopment defined as**
  - **Component included as part of ECS architecture**
  - **ECS responsible for M&O**
- **Envelopment study included in latest V0 Analysis Report**
  - **New architecture supports concept**
  - **Cost effectiveness not proven**
  - **Decision to envelop made with DAAC's on case-by-case basis**
    Answer by PDR for GSFC, LaRC, MSFC, EDC
- **Final decision for all DAACs on case-by-case basis by Release B IDR**

Priualof Priorities for Data Set Migration
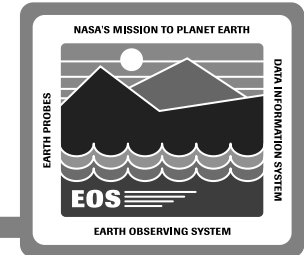
- Selection based on criteria listed below as mapped to the Science Data Plan
  - Final criteria determined as part of data analysis planning
- Preliminary criteria include
  - Priority of the data set, as defined by the DAAC UWG in the Science Data Plan
  - Level of service for the data set. For release A this is a high level of service
    - Select data sets for testing operational readiness of Release A.
    - Select high level of service data sets useful for training of ECS operations personnel at each DAAC
  - Provide a breadth of data types to enable wide testing of system functionality
  - Priority given to data not available at NOAA ADCs
- Intersection of data sets that are a priority to the science community and useful for test purposes

V0/V1 Transition Activities

- **V0 Data Migration Process**
  - **Data Analysis**
    - **Level of service/science priority/test requirements**
    - **Estimate resources to migrate**
  - **V0-V1 Migration Planning**
    - **Develop schedules with DAACs and UWGs**
    - **Sample migration (proof of concept)**
  - **V0 Data Migration**
    - **Migration of data to ECS**
  - **Shadow Operations**
    - **Data operationally distributed from V0**
    - **ECS shadows to ensure operational readiness**
- **Networks (Discussed in CSMS session)**
  - **Shadow operations**
  - **Interoperability prototyping**

V0/V1 Transition Schedule
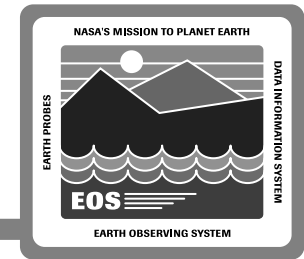
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Summary
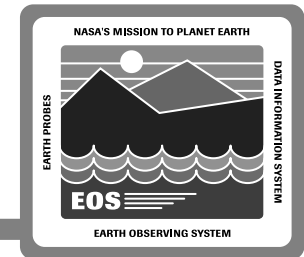
- **V0 has had a positive impact on ECS design**

- **Continued analysis of V0 will make results of V0 program available to ECS design and development groups**

- **V0 team will continue to work with the DAACs towards a smooth transition from V0 to V1**